Universitas Alma Ata The Globe Inspiring University	**ALMA ATA UNIVERSITY FACULTY OF COMPUTER AND ENGINEERING BACHELOR OF INFORMATICS ENGINEERING STUDY PROGRAM**	

SEMESTER LEARNING PLAN

COURSE (MK)	CODE	Study Material (BK)	WEIGHT (credits)		SEMESTER	Date of Preparation
Web Programming Basics	INF013	Programming Languages ; Human-Computer Interaction;	T [Theory] = 2	P [Practice] = 1	(3) Three	23 August 2023

	Semester Learning Plan Developer	Study Material Coordinator	Head of study programme
RESPONSE	Wahit Desta Prastowo, S.Kom, M.Kom	Dita Danianti, S.Kom., M.Kom	Dhina Puspasari Wijaya, S.Kom., M.Kom

Learning Outcomes	**SLOs that are imposed on MKs**	
	CPL03	Have adequate knowledge of how computer systems work and be able to apply/use various algorithms/methods to solve problems in an organisation.
	Course Learning Outcomes (CPMK)	
	CPMK031	Able to understand how computer systems work
	End ability of each learning stage (Sub-CPMK)	

Correlation of CPMK to Sub-CPMK	

Course Learning Outcomes		Supported SLOs
CPMK Code	**Description of CPMK**	
CPMK031	Able to understand how computer systems work	CPL03

Brief description of the course	The Basic Web Programming course is one of the courses to equip students with information technology competencies. This course will provide the basic concepts of what and how to design or design web pages with the HTML script language, CSS, Javacript and PHP programming language. This course also teaches students web programming from the client and server side.	
Study Material: Learning Materials	BK13 - Programming Languages BK22 - Human-Computer Interaction	
Library	**Main:**	
	1. A. N. Asyikin, 2018. Web Programming, Yogyakarta: Deepublish. 2. A. S. B. Nugroho, 2019. Advanced Web Programming (Array, Function and Crud with CodeIginiter, Banjarmasin: POLIBAN Press. 3. A. S. B. Nugroho, 2019. Advanced Web Programming (Array, Function and Crud with CodeIginiter, Banjarmasin: POLIBAN Press. 4. Dean, 2018. Web Programming with HTML5, CSS, and JavaScript, Jones & Barlett Learning. 5. M. Y. H. Setyawan and C. E. Prawiro, 2020. CodeIgniter: Implementation of Entropy Method in PHP Programming (Learning with Practice), Creative Industries of the Archipelago.	
	Supporters:	
	-	
Lecturer	Wahit Desta Prastowo, S.Kom.,M.Kom	
Prerequisite Courses	-	

Week 1	End ability of each learning stage (Sub-CPMK)	Indicators	Criteria and Techniques	Form of Learning; Learning Methods; Student Assignments; [Time Estimation]		Learning Materials [Library]	Assessment Weight (%)
(1)	(2)	(3)	(4)	Offline (5)	Online (6)	(7)	(8)
1	Sub-CPMK0311 - Ability to understand how computer systems work	Correctly explain the difference between server side and client side.	Practical Results; Observation (Practical/Assignment)	Student centred learning	Asynchronous	1,2,3,4,5	5
2	Sub-CPMK0311 - Ability to understand how computer systems work	Able to create programmes/ coding using Javascript.	Practical Results; Observation (Practical/Assignment)	Student centred learning	Asynchronous	1,2,3,4,5	5
3	Sub-CPMK0311 - Ability to understand how computer systems work	Able to create programmes/ coding using Javascript.	Practical Results; Observation (Practical/Assignment)	Student centred learning	Asynchronous	1,2,3,4,5	5
4	Sub-CPMK0311 - Ability to understand how computer systems work	Able to create programmes using arrays, functions, and string handling and Date.	Practical Results; Observation (Practical/Assignment)	Student centred learning	Asynchronous	1,2,3,4,5	5
5	Sub-CPMK0311 - Ability to understand how computer systems work	Understand the manufacturing principle value-compliant web Islamic teachings	Practical Results; Observation (Practical/Assignment)	Student centred learning	Asynchronous	1,2,3,4,5	5
6	Sub-CPMK0311 - Ability to understand how computer systems work	Able to understand the structure PHP basics and apply them to conditions and loops.	Accuracy of UTS Answers; Written Test (UTS)	Student centred learning	Asynchronous	1,2,3,4,5	5
7	Sub-CPMK0311 - Ability to understand how computer systems work	Able to understand the structure PHP basics and apply them to conditions and loops.	Accuracy of UTS Answers; Written Test (UTS)	Student centred learning	Asynchronous	1,2,3,4,5	5
8	Sub-CPMK0311 - Ability to understand how computer systems work	Students understand how to using the MVC concept	Practical Results; Observation (Practical/Assignment)	Student centred learning	Asynchronous	1,2,3,4,5	5
9	Sub-CPMK0311 - Ability to understand how computer systems work	Able to create a database connection programme.	Practical Results; Observation (Practical/Assignment)	Student centred learning	Asynchronous	1,2,3,4,5	5
10	Sub-CPMK0311 - Ability to understand how computer systems work	Able to create input forms, handles file input, output directory files, storing in the base.	Practical Results; Observation (Practical/Assignment)	Student centred learning	Asynchronous	1,2,3,4,5	5
11	Sub-CPMK0311 - Ability to understand how computer systems work	Able to create input forms, handles file input, output directory files, storing in a base	Presentation Quality; Performance	Student centred learning	Asynchronous	1,2,3,4,5	5
12	Sub-CPMK0311 - Ability to understand how computer systems work	Able to explain with precise concept of session and cookies man	Presentation Quality; Performance	Student centred learning	Asynchronous	1,2,3,4,5	5

13	Sub-CPMK0311 - Ability to understand how computer systems work	Able to implement the concept of sessions and cookies management on the programme made.	Accuracy of UAS Answers; Written Test (UAS)	Student centred learning	Asynchronous	1,2,3,4,5	5
14	Sub-CPMK0311 - Ability to understand how computer systems work	Create case-specific applications with PHP and MySQL	Accuracy of UAS Answers; Written Test (UAS)	Student centred learning	Asynchronous	1,2,3,4,5	5

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SEMESTER LEARNING PLAN

COURSE (MK)	CODE	Study Material (BK)	WEIGHT (credits)		SEMESTER	Date of Preparation
Structured System Analysis and Design	INF014	Parallel and Distributed Computing; Software Design;	T [Theory] = 2	P[Practice] = 0	(3) Three	25 August 2023

	Semester Learning Plan Developer	Study Material Coordinator	Head of study programme
RESPONSE	Dhina Puspasari Wijaya, S.Kom., M.Kom	Dita Danianti, S.Kom., M.Kom	Dhina Puspasari Wijaya, S.Kom., M.Kom

Learning Outcomes	**SLOs that are imposed on MKs**	
	CPL09	Ability to analyse, design create and evaluate user interfaces and interactive applications by considering user needs and transdisciplinary science developments.
	Course Learning Outcomes (CPMK)	
	CPMK091	Able to analyse and design user interfaces and interactive applications by considering user needs and the development of transdisciplinary science.
	CPMK093	Able to evaluate user interfaces and interactive applications
	End ability of each learning stage (Sub-CPMK)	

Correlation of CPMK to Sub-CPMK	

Course Learning Outcomes		Supported SLOs
CPMK Code	**Description of CPMK**	
CPMK091	Able to analyse and design user interfaces and interactive applications by considering user needs and the development of transdisciplinary science.	CPL09
CPMK093	Able to evaluate user interfaces and interactive applications	CPL09

Brief description of the course	This course introduces the students to everything related to with the process of designing a system by paying attention to the sequence of command steps systematically, logically, and arranged based on algorithms that simple and easy to understand. Topics covered include the process of system analysis and system design techniques.	
Study Material: Learning Materials	1. Design Software 2. Software Process	
Library	**Main:**	
	1. Budgen, D. (2020). Software Design: Creating Solutions for Ill-Structured Problems. United States: CRC Press.	
	Supporters:	
	2. B.S. Barn, et al. (2020). Advanced Digital Architectures for Model-Driven Adaptive Enterprises. United States: IGI Global. 3. Rajaraman, V. (2018). Analysis and Design of Information Systems. India: Prentice Hall India Pvt. Limited. 4. A. Siarheyeva, et al (2020). Advances in Information Systems Development: Information Systems Beyond 2020. Germany: Springer International Publishing. 5. Sajja, P. S. (2017). Essence of Systems Analysis and Design: A Workbook Approach. Singapore: Springer Singapore.	
Lecturer	Dhina Puspasari Wijaya, S.Kom., M.Kom	
Prerequisite Courses	-	

Week 1	End ability of each learning stage (Sub-CPMK)	Indicators	Criteria and Techniques	Form of Learning; Learning Methods; Student Assignments; [Time Estimation]		Learning Materials [Library]	Assessment Weight (%)
(1)	(2)	(3)	(4)	Offline (5)	Online (6)	(7)	(8)
1	Sub-CPMK0911 - Ability to analyse and design user interfaces for interactive software applications	Students are able to understand the System Concept, System Components and System Characteristics.	Accuracy of UTS Answers; Written Test (UTS)	Student Centre Learning	Asyncronous	1,2,3,4,5	10
2	Sub-CPMK0911 - Ability to analyse and design user interfaces for interactive software applications	Students are able to understand the stakeholders in a system, and are able to understand the System Life Cycle.	Accuracy of UTS Answers; Written Test (UTS)	Student Centre Learning	Asyncronous	1,2,3,4,5	10
3	Sub-CPMK0911 - Ability to analyse and design user interfaces for interactive software applications	Students are able to understand system development methodology	Accuracy of UTS Answers; Written Test (UTS)	Student Centre Learning	Asyncronous	1,2,3,4,5	10
4	Sub-CPMK0911 - Ability to analyse and design user interfaces for interactive software applications	Students are able to make project planning using Gant Chart	Accuracy of Answer; Observation (Practice/Task)	Student Centre Learning	Asyncronous	1,2,3,4,5	5
5	Sub-CPMK0911 - Ability to analyse and design user interfaces for interactive software applications	Students are able to make system design in the context of project planning	Accuracy of Answer; Observation (Practice/Task)	Student Centre Learning	Asyncronous	1,2,3,4,5	5
6	Sub-CPMK0911 - Ability to analyse and design user interfaces for interactive software applications	Students are able to analyse system weaknesses and solutions.	Accuracy of Answer; Observation (Practice/Task)	Student Centre Learning	Asyncronous	1,2,3,4,5	5
7	Sub-CPMK0911 - Ability to analyse and design user interfaces for interactive software applications	Students are able to analyse system requirements in the form of functional and non-functional requirements	Accuracy of Answer; Observation (Practice/Task)	Student Centre Learning	Asyncronous	1,2,3,4,5	5
8	Sub-CPMK0912 - Ability to create user interfaces for interactive software applications using various methods	Students are able to analyse the feasibility of the system, containing operational feasibility, legal feasibility, economic feasibility.	Accuracy of Answer; Observation (Practice/Task)	Student Centre Learning	Asyncronous	1,2,3,4,5	10
9	Sub-CPMK0912 - Ability to create user interfaces for interactive software applications using various methods	Students are able to use SWOT analysis	Accuracy of Answer; Observation (Practice/Task)	Student Centre Learning	Asyncronous	1,2,3,4,5	10
10	Sub-CPMK0912 - Ability to create user interfaces for interactive software applications using various methods	Students are able to conduct benefit cost analysis.	Accuracy of Answer; Observation (Practice/Task)	Student Centre Learning	Asyncronous	1,2,3,4,5	10

11	Sub-CPMK0912 - Ability to create user interfaces for interactive software applications using various methods	Students are able to design process modelling using data flow diagrams.	Presentation Quality; Performance	Student Centre Learning	Asyncronous	1,2,3,4,5	5
12	Sub-CPMK0912 - Ability to create user interfaces for interactive software applications using various methods	Students are able to design data modelling using entity relationship design.	Presentation Quality; Performance	Student Centre Learning	Asyncronous	1,2,3,4,5	5
13	Sub-CPMK0912 - Ability to create user interfaces for interactive software applications using various methods	Students are able to design interface design in the form of mockup design	Presentation Quality; Performance	Student Centre Learning	Asyncronous	1,2,3,4,5	5
14	Sub-CPMK0912 - Ability to create user interfaces for interactive software applications using various methods	Students are able to design a cost budget in system development	Presentation Quality; Performance	Student Centre Learning	Asyncronous	1,2,3,4,5	5

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SEMESTER LEARNING PLAN

COURSE (MK)	CODE	Study Material (BK)	WEIGHT (credits)		SEMESTER	Date of Preparation
Database Management System	INF016	Data and Information Management; Software Design;	T [Theory] = 2	P [Practice] = 1	(3) Three	25 December 2023

RESPONSE	Semester Learning Plan Developer	Study Material Coordinator	Head of study programme
	Andri Pramuntadi, S.Kom., M.Kom	Dita Danianti, S.Kom., M.Kom	Dhina Puspasari Wijaya, S.Kom., M.Kom

Learning Outcomes		
	SLOs that are imposed on MKs	
	CPL08	Ability to implement computing requirements by considering various appropriate methods/algorithms.
	Course Learning Outcomes (CPMK)	
	CPMK084	Able to fulfil computing-based needs.
	End ability of each learning stage (Sub-CPMK)	

Correlation of CPMK to Sub-CPMK	

Course Learning Outcomes		Supported SLOs
CPMK Code	**Description of CPMK**	
CPMK084	Able to fulfil computing-based needs.	CPL08

Brief description of the course	This course provides advanced knowledge to students about the basic understanding of the concepts of multiuser database systems, standard database access techniques, security and SQL processing on database servers in data processing, technology and datawarehouse as a tool used in the process of designing information systems.	
Study Material: Learning Materials	a. Principles of relation concepts in databases b. SQL and No SQL concepts c. Advanced Relational Database Design Theory d. Query Processing e. Transaction Concept f. Advanced application and database design concepts	
Library	**Main:**	
	1. A.Jeffer Hoffrey, 2010, Modern Database Management System, 3rd Edition, Prentice Hall, USA 2. Paul DuBois, 2014, MySQL CookBook, 3rd Edition, O'Relly, USA.	
	Supporters:	
	Data Base Management System. (2022). (n.p.): AG PUBLISHING HOUSE (AGPH Books).	
Lecturer	Andri Pramuntadi, S.Kom., M.Kom	
Prerequisite Courses	Database	

Week 1	End ability of each learning stage (Sub-CPMK)	Indicators	Criteria and Techniq ues	Form of Learning; Learning Methods; Student Assignments; [Time Estimation]		Learning Materials [Library]	Assessmen t Weight (%)
(1)	(2)	(3)	(4)	Offline (5)	Online (6)	(7)	(8)
1	SUBCPMK0841 - analyse and evaluate the principles of relationship concepts in advanced databases and needs from a business and organisational perspective.	Accuracy in analysing and evaluating distributed database systems	Accuracy of Answers; Written Test (UTS)	Approach: Scientific Model: Co-operative Method: Discussion, Presentation	Quiz / Elearning	1. Basic Notions 2. Fundamental Relational Algebra Operations 3. Additional Relational Algebra Operations 4. Extended Relational Algebra Operations	3
2	SUBCPMK0841 - analyse and evaluate the principles of relationship concepts in advanced databases and needs from a business and organisational perspective.	Accuracy in analysing and evaluating the principles of relationship concepts in databases	Accuracy of Answers; Written Test (UTS)	Approach: Scientific Model: Co-operative Method: Discussion, Presentation	Methods: Discussion, Presentation	1. Null Values 2. Modification of the Database 3. Views 4. Bags and Bag operations	3
3	SUBCPMK0842 - demonstrate and develop SQL and No SQL concepts	Accuracy in demonstrating and developing SQL and No SQL concepts	Accuracy of Answers; Written Test (UTS)	Approach: Scientific Model: Co-operative Method: Discussion, Presentation	Quiz / Elearning	1. Data Definition 2. Query Structure	5
4	SUBCPMK0842 - demonstrate and develop SQL and No SQL concepts	Accuracy in demonstrating and developing SQL and No SQL concepts	Accuracy of Answers; Written Test (UTS)	Approach: Scientific Model: Co-operative Method: Discussion, Presentation	Quiz / Elearning	1. Additional Operations 2. Set Operations	5
5	SUBCPMK0842 - demonstrate and develop SQL and No SQL concepts	Accuracy in demonstrating and developing advanced SQL and No SQL concepts Part 2	Accuracy of Answers; Written Test (UTS)	Lecture, Discussion and Assignment (Role-Play & Simulation, Small Group Discussion)	Elearnning	1. Null Values 2. Aggregate Functions 3. Nested Subqueries 4. Modification of the Database	5
6	CPMK0843 - analysing and evaluating Advanced Relational Database Design Theory	Accuracy in analysing and evaluating Advanced Relational Database Design Theory Part 1	Accuracy of Answers; Written Test (UTS)	Lecture and Discussion (Discovery Learning, Small Group Discussion)	E-learning, Reference Books	1. First Normal Form 2. Decomposition Using Functional Dependencies 3. Functional Dependency 4. Algorithms for Functional Dependencies and Dependency preserving Decompositions	3
7	CPMK0843 - analysing and evaluating Advanced Relational Database Design Theory	Accuracy in analysing and evaluating Advanced Relational Database Design Theory	Accuracy of Answers; Written Test (UTS)	Approach: Scientific Model: Co-operative Method: Discussion, Presentation	Elearning	1. BCNF and 3D Normal Form 2. Decomposition Using Multivalued Dependencies and 4th Normal Form 3. Database Design Process: Modelling Temporal Data	5
8	SUBCPMK0841 - analyse and evaluate the principles of relationship concepts in advanced databases and needs from a business and organisational perspective.	UTS	Accuracy of Test Answers; Test Writing (UTS)	Written Test			25

9	CPMK0845 - analyse and develop the concept of transaction management (Transaction Concept)	Accuracy in analysing and evaluating advanced Query Processing	Accuracy of Answer; Written Test (UAS)	Approach: Scientific Model: Co-operative Method: Discussion, Presentation	Lecture / Discovery Learning Simulation Quiz / Elearning	1. Measures of Query Cost 2. Selection Operation 3. Sorting	5
10	CPMK0844 - analyse and evaluate advanced Query Processing	Accuracy in analysing and evaluating advanced Query Processing Part 2	Accuracy of Answer; Written Test (UAS)	Approach: Scientific Model: Co-operative Method: Discussion, Presentation	Quiz / Elearning	1. Join Operation 2. Other Operations 3. Evaluation of Expressions	5
11	CPMK0845 - analyse and develop the concept of transaction management (Transaction Concept)	Accuracy in analysing and developing transaction management concepts	Accuracy of Answer; Written Test (UAS)	Approach: Scientific Model: Co-operative Method: Discussion, Presentation	Quiz / Elearning	1. Transaction Concept 2. Transaction State 3. Implementation of Atomicity and Durability	5
12	CPMK0845 - analyse and develop the concept of transaction management (Transaction Concept)	Accuracy in analysing and developing transaction management concepts (Transaction Concept)	Accuracy of Answer; Written Test (UAS)	Approach: Scientific Model: Co-operative Method: Discussion, Presentation	Quiz / Elearning	1. Implementation of Atomicity and Durability 2. Concurrent Executions 3. Serializability	5
13	CPMK0845 - analyse and develop the concept of transaction management (Transaction Concept)	Accuracy in analysing and developing transaction management concepts (Transaction Concept)	Accuracy of Answer; Written Test (UAS)	Approach: Scientific Model: Co-operative Method: Discussion, Presentation	Quiz / Elearning	1. Recoverability 2. Implementation of Isolation 3. Transaction Definition in SQL 4. Testing for Serializability	5
14	CPMK0845 - analyse and develop the concept of transaction management (Transaction Concept)	Accuracy in developing ideas and concepts of application design and development concepts	Quality of Presentation; Observation (Practical/Assignment)	Approach: Scientific Model: Co-operative Method: Discussion, Presentation	-	1. User Interfaces and Tools 2. Web Interfaces to Databases	5
15	CPMK0846 - develop ideas and concepts of advanced application and database design and development	Accuracy in developing ideas and demonstrating the application design and development concept Section	Presentation Quality; Performance	Model: Co-operative Method: Discussion, Presentation	-	1. Web Fundamentals 2. Servlets and JSP 3. Building Large Web Applications	5
16	CPMK0846 - develop ideas and concepts of advanced application and database design and development	End of Semester Exam (UAS)	Accuracy of UAS Answers; Test Writing (UAS)	Written Test			25

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SEMESTER LEARNING PLAN

COURSE (MK)	CODE	Study Material (BK)	WEIGHT (credits)		SEMESTER	Date of Preparation
Hospital Information System	INF017	Social Issues and Professional Practice; Security Issues and Principles; Human-Computer Interaction;	T [Theory] = 2	P[Practice] = 0	(3) Three	23 August 2023

RESPONSE	Semester Learning Plan Developer	Study Material Coordinator	Head of study programme
	Wahit Desta Prastowo, S.Kom.,M.Kom	Dita Danianti, S.Kom., M.Kom	Dhina Puspasari Wijaya, S.Kom., M.Kom

Learning Outcomes	**SLOs that are imposed on MKs**	
	CPL11	Able to identify problems and formulate computational solutions for problems in the health and medical fields.
	CPL12	Implementing the values of Islamic teachings that are rahmatan lil'alamiin.
	Course Learning Outcomes (CPMK)	
	CPMK111	Able to identify various computational problems in the field of medical health
	CPMK112	Able to formulate computational solutions in the health and medical fields
	CPMK121	Able to show an attitude of piety to God Almighty in accordance with the values of Islamic teachings that are Rohmatan lil'alamin (practicing Pancasila, based on law, love for others, tolerant, and not radical)
	End ability of each learning stage (Sub-CPMK)	

Correlation of CPMK to Sub-CPMK	

Course Learning Outcomes		Supported SLOs
CPMK Code	**Description of CPMK**	
CPMK111	Able to identify various computational problems in the field of medical health	CPL11
CPMK112	Able to formulate computational solutions in the health and medical fields	CPL11
CPMK121	Able to show an attitude of piety to God Almighty in accordance with the values of Islamic teachings that are Rohmatan lil'alamin (practicing Pancasila, based on law, love for others, tolerant, and not radical)	CPL12

Brief description of the course	The Hospital Information System course is one of the courses that provides students with an understanding of how a collection of information is stored in a computer systematically so that it can be examined using a computer program to obtain information from the database. The material taught includes server side, client side, Javascript, basic PHP structure, conditions and looping, view controller model, form handling, arrays and functions, strings and dates, directory files, database connections, session and cookies management, creating applications with PHP and MySQL. After studying this course, students are expected to be able to understand how to design a database based on the required business process.	
Study Material: Learning Materials	BK01 - Social Issues and Professional Practice BK05 - Security Issues and Principles BK22 - Human-Computer Interaction	
Library	**Main:**	
	1. Kadir, Abdul and Tarra, CH Trywahyuni. (2003). Introduction to Information Technology. Yogyakarta: Andi. 2. Jogiyanto H. (2013).). Information Systems and their applications. Bandung: Informatics.	
	Supporters:	
	-	
Lecturer	Wahit Desta Prastowo, S.Kom.,M.Kom	
Prerequisite Courses	-	

Week 1	End ability of each learning stage (Sub-CPMK)	Indicators	Criteria and Techniques	Form of Learning; Learning Methods; Student Assignments; [Time Estimation]		Learning Materials [Library]	Assessment Weight (%)
(1)	(2)	(3)	(4)	Offline (5)	Online (6)	(7)	(8)
1	Sub-CPMK1111 - Ability to identify various computing problems	Able to explain the Concept of Information Technology	Practical Results; Observation (Practical/Assignment)	Student Centre Learning	Asynchronous	1,2	5
2	Sub-CPMK1112 - Ability to identify various computational problems in the health sector	Able to explain Information System Concepts	Practical Results; Observation (Practical/Assignment)	Student Centre Learning	Asynchronous	1,2	5
3	Sub-CPMK1112 - Ability to identify various computational problems in the health sector	Able to explain the Concepts of Information SystemsInformation Systems	Practical Results; Observation (Practical/Assignment)	Student Centre Learning	Asynchronous	1,2	5
4	Sub-CPMK1112 - Ability to identify various computational problems in the health sector	Able to explain Related The role of information technology in the health sector.	Practical Results; Participation (Attendance/Quiz)	Student Centre Learning	Asynchronous	1,2	10
5	Sub-CPMK1112 - Ability to identify various computational problems in the health sector	Able to understand and operate the application word processing.	Practical Results; Observation (Practical/Assignment)	Student Centre Learning	Asynchronous	1,2	5
6	Sub-CPMK1111 - Ability to identify various computing problems	Analysis and design of health information systemshealth information systems.	Practical Results; Observation (Practical/Assignment)	Student Centre Learning	Asynchronous	1,2	5
7	Sub-CPMK1111 - Ability to identify various computing problems	Analysis and design of health information systemshealth information systems	Accuracy of UTS Answers; Written Test (UTS)	Student Centre Learning	Asynchronous	1,2	5
8	Sub-CPMK1111 - Ability to identify various computing problems	Able to explain the System Health Information (HIS)	Practical Results; Observation (Practical/Assignment)	Student Centre Learning	Asynchronous	1,2	5
9	Sub-CPMK1112 - Ability to identify various computational problems in the health sector	Able to explain the system health management information (SIMK)	Practical Results; Observation (Practical/Assignment)	Student Centre Learning	Asynchronous	1,2	5
10	Sub-CPMK1121 - Ability to formulate solutions to various computational problems	Able to explain the system National Health Information Centre (SIKNAS)	Practical Results; Observation (Practical/Assignment)	Student Centre Learning	Asynchronous	1,2	5
11	Sub-CPMK1111 - Ability to identify various computing problems	Able to explain the National Health Information System	Practical Results; Observation (Practical/Assignment)	Student Centre Learning	Asynchronous	1,2	5
12	Sub-CPMK1111 - Ability to identify various computing problems	Information system trends and issues in general and information technology for the world of health	Practical Results; Observation (Practical/Assignment)	Student Centre Learning	Asynchronous	1,2	5
13	Sub-CPMK1121 - Ability to formulate solutions to various computational problems	Able to understand and apply the application number management.	Accuracy of UAS Answers; Written Test (UAS)	Student Centre Learning	Asynchronous	1,2	5

14	Sub-CPMK1121 - Ability to formulate solutions to various computational problems	Able to understand and apply the making of tables and graphs using tables and figures	Accuracy of UAS Answers; Written Test (UAS)	Student Centre Learning	Asynchronous	1,2	10

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SEMESTER LEARNING PLAN

COURSE (MK)	CODE	Study Material (BK)	WEIGHT (credits)		SEMESTER	Date of Preparation
Numerical Analysis	INF018	Data Structures, Algorithms and Complexity ;	T [Theory] = 2	P[Practice] = 0	(3) Three	29 December 2023

	Semester Learning Plan Developer	Study Material Coordinator	Head of study programme
RESPONSE	Andri Pramuntadi, S.Kom., M.Kom	Dita Danianti, S.Kom., M.Kom	Dhina Puspasari Wijaya, S.Kom., M.Kom

Learning Outcomes	**SLOs that are imposed on MKs**	
	CPL03	Have adequate knowledge of how computer systems work and be able to apply/use various algorithms/methods to solve problems in an organisation.
	Course Learning Outcomes (CPMK)	
	CPMK031	Able to understand how computer systems work
	End ability of each learning stage (Sub-CPMK)	

Correlation of CPMK to Sub-CPMK	

Course Learning Outcomes		Supported SLOs
CPMK Code	**Description of CPMK**	
CPMK031	Able to understand how computer systems work	CPL03

Brief description of the course	Numerical computing is a course that gives students the opportunity to solve mathematical problems numerically. This course discusses errors, interpolation, numerical turning and integrating, ordinary differential equations (initial value problems), and partial differential equations.	
Study Material: Learning Materials	1. Error analysis 2. Interpolation 3. Numerical Derivation 4. Numerical Integral 5. Numerical solution of differential equations	
Library	**Main:**	
	1. R. L. Burden and J. D. Faires, Numerical Analysis, 9th edition, Brooks-Cole, 2. Kendall Atkinson and Weimin Han, Elementary Numerical Analysis, 2nd edition, John Wiley & Sons, Inc. 3. Steven Chapra & Canale, Numerical methods for engineering, 4th edition, McGraw-Hill, 2002.	
	Supporters:	
	Lectures and handouts on Numerical Analysis from the Lecturer Team	
Lecturer	Andri Pramuntadi, S.Kom., M.Kom	
Prerequisite Courses	-	

Week 1	End ability of each learning stage (Sub-CPMK)	Indicators	Criteria and Techniques	Form of Learning; Learning Methods; Student Assignments; [Time Estimation]		Learning Materials [Library]	Assessment Weight (%)
(1)	(2)	(3)	(4)	Offline (5)	Online (6)	(7)	(8)
1	Sub-CPMK03111 - able to analyse error and convergence of numerical problems	Good ability to analyse errors and their convergence	Accuracy of Answers; Written Test (UTS)	Lecture / Discovery Learning Simulation	Quiz / Elearning	Convergence Error Analysis Course Contract	5
2	Sub-CPMK03112 - able to explain, create algorithms and implement about numerical interpolation	Ability to create algorithms and implement numerical interpolation	Accuracy of Test Answers; Test Writing (UTS)	Lecture / Discovery Learning Simulation	Quiz / Elearning	Interpolation: • Lagrange Interpolation Polynomial • Newton's Divided Difference Interpolation Polynomial.	5
3	Sub-CPMK03112 - able to explain, create algorithms and implement about numerical interpolation	Ability to create algorithms and implement numerical interpolation	Accuracy of Answers; Written Test (UTS)	Lecture / Discovery Learning Simulation	Quiz / Elearning	• Linear Spline Interpolation Polynomial • Quadratic Spline Interpolation Polynomials	5
4	Sub-CPMK03113 - able to explain, create algorithms and implement numerical differentiation and numerical integration	Able to solve and implement Numerical Differentials	Accuracy of Answers; Written Test (UTS)	Lecture / Discovery Learning Simulation	Quiz / Elearning	Numerical differentiation: - Forward/Backward/Centre Difference Method, - NewtonCotes rule,	5
5	Sub-CPMK03113 - able to explain, create algorithms and implement numerical differentiation and numerical integration	Able to solve and implement Numerical Differentials	Accuracy of Answers; Written Test (UTS)	Lecture / Discovery Learning Simulation	Quiz / Elearning	-Richardson extrapolation, -Higher-level derivatives	5
6	Sub-CPMK03113 - able to explain, create algorithms and implement numerical differentiation and numerical integration	Able to solve and implement numerical integration	Accuracy of Answers; Written Test (UTS)	Lecture / Discovery Learning Simulation	Quiz / Elearning	Numerical integration methods: • Trapezoidal Method • Simpson's method	5
7	Sub-CPMK03113 - able to explain, create algorithms and implement numerical differentiation and numerical integration	Able to solve and implement numerical integration	Accuracy of Test Answers; Test Writing (UTS)	Lecture / Discovery Learning Simulation	Quiz/Elearning	Numerical integration methods: • Recursive rules • Romberg • Adative Quadrature	5
8	Sub-CPMK03111 - able to analyse error and convergence of numerical problems	UTS	Accuracy of Test Answers; Test Writing (UTS)	Written Test	-	-	25
9	Sub-CPMK03114 - able to understand and analyse the basics of initial value problem theory and implement	Good ability to understand and analyse initial value problems	Accuracy of Test Answers; Test Writing (UTS)	Lecture / Discovery Learning Simulation	Quiz/Elearning	Fundamentals of the theory of initial value problems	5
10	Sub-CPMK03114 - able to understand and analyse the basics of initial value problem theory and implement	Good ability to understand and analyse several methods of solving initial value problems	Accuracy of UAS Answers; Test Writing (UAS)	Lecture / Discovery Learning Simulation	Quiz / Elearning	• Euler's method, Taylor	5
11	Sub-CLO03115 - able to create algorithms and implement methods for solving Boundary Value Problems	Good ability to understand and analyse several methods of solving initial value problems	Accuracy of UAS Answers; Test Writing (UAS)	Lecture / Discovery Learning Simulation	Quiz/Elearning	Adam's Method, and Milne's Method	5

12	Sub-CPMK03114 - able to understand and analyse the basics of initial value problem theory and implement	Good ability to understand and analyse several methods of solving initial value problems	Accuracy of UAS Answers; Test Writing (UAS)	Lecture / Discovery Learning Simulation	Quiz/Elearning	Heun's method, Runge-Kutta	5
13	Sub-CLO03115 - able to create algorithms and implement methods for solving Boundary Value Problems	Good ability to understand and analyse several methods of solving initial value problems	Accuracy of UAS Answers; Test Writing (UAS)	Lecture / Discovery Learning Simulation	Quiz / Elearning	Multistep Method	5
14	Sub-CLO03115 - able to create algorithms and implement methods for solving Boundary Value Problems	Good ability to understand and analyse several methods of solving higher-order PD.	Accuracy of UAS Answers; Test Writing (UAS)	Lecture / Discovery Learning Simulation	Quiz/Elearning	Transformation of higher order PD into PD order one	5
15	Sub-CLO03115 - able to create algorithms and implement methods for solving Boundary Value Problems	Good ability to understand and analyse some methods of solving boundary value problems	Accuracy of UAS Answers; Test Writing (UAS)	Lecture / Discovery Learning Simulation	Quiz / Elearning	- Shooting Method - Finite Difference Method	5
16	Sub-CLO03115 - able to create algorithms and implement methods for solving Boundary Value Problems		Accuracy of UAS Answers; Test Writing (UAS)	Written Test			25

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SEMESTER LEARNING PLAN

COURSE (MK)	CODE	Study Material (BK)	WEIGHT (credits)		SEMESTER	Date of Preparation
Artificial Intelligence	INF022	Programming Fundamentals; Computing Systems Fundamentals; Intelligent Systems ;	T [Theory] = 3	P[Practice] = 0	(3) Three	23 August 2023

	Semester Learning Plan Developer	Study Material Coordinator	Head of study programme
RESPONSE	Dhina Puspasari Wijaya, S.Kom., M.Kom	Dita Danianti, S.Kom., M.Kom	Dhina Puspasari Wijaya, S.Kom., M.Kom

Learning Outcomes	**SLOs that are imposed on MKs**	
	CPL04	Have the competence to analyse complex computing problems to identify solutions for technology project management in the field of informatics/computer science by considering the insights of transdisciplinary science development.
	CPL05	Mastering the theoretical concepts of Computer Science / Informatics knowledge in designing and simulating multi-platform technology applications that are relevant to the needs of industry and society.
	Course Learning Outcomes (CPMK)	
	CPMK041	Able to identify complex computing problems
	CPMK051	Able to master the theoretical concepts of Computer Science/Informatics knowledge in designing multi-platform technology applications that are relevant to the needs of industry and society.
	End ability of each learning stage (Sub-CPMK)	

Correlation of CPMK to Sub-CPMK	

Course Learning Outcomes		Supported SLOs
CPMK Code	**Description of CPMK**	
CPMK041	Able to identify complex computing problems	CPL04
CPMK051	Able to master the theoretical concepts of Computer Science/Informatics knowledge in designing multi-platform technology applications that are relevant to the needs of industry and society.	CPL05

Brief description of the course	This course discusses the basic concepts of artificial intelligence and its development, the basic concepts of knowledge and the following methods knowledge representation, problem-solving techniques with search methods, and applications of intelligent systems in the field of artificial intelligence	
Study Material: Learning Materials	1. INTRODUCTION TO ARTIFICIAL INTELLIGENCE 2. PROBLEM AND STATE SPACE 3. Search in State Space 4. Search method in state space 5. Introduction to Expert Systems 6. Expert System 7. Introduction to Fuzzy Logic Systems 8. Fuzzy Logic System 9. COMPUTER VISION 10. Computer Vision Implementation 11. Image Processing	
Library	**Main:**	
	Widodo and Derwin. Artificial Intelligence concepts and applications: First Edition. Yogyakarta: Andi. 2014	
	Supporters:	
	YeaRimDang. Why? Artificial Intelligence - Artificial Intelligence. Elex Media Komputindo, 2021. 3. Sabouret, Nicolas. Understanding Artificial Intelligence. United Kingdom, CRC Press, 2020. 4. M. Dhivya, S. Kanimozhi Suguna, Sara Paiva. Artificial Intelligence (AI): Recent Trends and Applications. United States, CRC Press, 2021. 8 5. Ertel, Wolfgang. Introduction to Artificial Intelligence. Germany, Springer International Publishing, 2018.	
Lecturer	Dhina Puspasari Wijaya, S.Kom., M.Kom	
Prerequisite Courses	-	

Week 1	End ability of each learning stage (Sub-CPMK)	Indicators	Criteria and Techniques	Form of Learning; Learning Methods; Student Assignments; [Time Estimation]		Learning Materials [Library]	Assessment Weight (%)
(1)	(2)	(3)	(4)	Offline (5)	Online (6)	(7)	(8)
1	Sub-CPMK0411 - Ability to analyse complex computing problems	Students are able to explain the application of artificial intelligence applications in various fields	Practical Results; Observation (Practical/Assignment)	Lecture; Discovery Learning, group discussion. (2x(2x50 minute)	Assignment: Materials /Tasks on eLearning.	Widodo and Derwin. Artificial Intelligence concepts and applications: First Edition. Yogyakarta: Andi. 2014	5
2	Sub-CPMK0411 - Ability to analyse complex computing problems	Students have a general knowledge of all techniques for representing knowledge	Practical Results; Participation (Attendance/Quiz)	Lecture; Discovery Learning, group discussion. (2x(2x50 minute)	Assignment: Materials /Tasks on eLearning.	Widodo and Derwin. Artificial Intelligence concepts and applications: First Edition. Yogyakarta: Andi. 2014	5
3	Sub-CPMK0411 - Ability to analyse complex computing problems	Students are able to explain the meaning and function of bayessin rule	Accuracy of UTS Answers; Written Test (UTS)	Lecture; Discovery Learning, group discussion. (2x(2x50 minute)	Assignment: Materials /Tasks on eLearning.	Widodo and Derwin. Artificial Intelligence concepts and applications: First Edition. Yogyakarta: Andi. 2014	5
4	Sub-CPMK0411 - Ability to analyse complex computing problems	Students are able to explain and understand about fuzzy logic and its applications	Accuracy of UTS Answers; Written Test (UTS)	Lecture; Discovery Learning, group discussion. (2x(2x50 minute)	Assignment: Materials /Tasks on eLearning.	Widodo and Derwin. Artificial Intelligence concepts and applications: First Edition. Yogyakarta: Andi. 2014	5
5	Sub-CPMK0411 - Ability to analyse complex computing problems	Students are able to explain and understand about fuzzy logic and its applications	Accuracy of UTS Answers; Written Test (UTS)	Lecture; Discovery Learning, group discussion. (2x(2x50 minute)	Assignment: Materials /Tasks on eLearning.	Widodo and Derwin. Artificial Intelligence concepts and applications: First Edition. Yogyakarta: Andi. 2014	5
6	Sub-CPMK0411 - Ability to analyse complex computing problems	Students are able to explain and understand about version space	Accuracy of UTS Answers; Written Test (UTS)	Lecture; Discovery Learning, group discussion. (2x(2x50 minute)	Assignment: Materials /Tasks on eLearning.	Widodo and Derwin. Artificial Intelligence concepts and applications: First Edition. Yogyakarta: Andi. 2014	5
7	Sub-CPMK0411 - Ability to analyse complex computing problems	Students are able to understand and explain the concept of expert system	Accuracy of UTS Answers; Written Test (UTS)	Lecture; Discovery Learning, group discussion. (2x(2x50 minute)	Assignment: Materials /Tasks on eLearning.	Widodo and Derwin. Artificial Intelligence concepts and applications: First Edition. Yogyakarta: Andi. 2014	5
8	Sub-CPMK0511 - Ability to understand the theory of software engineering in designing multi-platform technology applications that are relevant to the needs of industry and society.	Students are able to explain and understand neural networks	Presentation Quality; Performance	Lecture; Discovery Learning, group discussion. (2x(2x50 minute)	Assignment: Materials /Tasks on eLearning.	Widodo and Derwin. Artificial Intelligence concepts and applications: First Edition. Yogyakarta: Andi. 2014	5
9	Sub-CPMK0511 - Ability to understand the theory of software engineering in designing multi-platform technology applications that are relevant to the needs of industry and society.	Students are able to explain the function of genetic algorithms and make artificial intelligence applications with genetic algorithms	Presentation Quality; Performance	Lecture; Discovery Learning, group discussion. (2x(2x50 minute)	Assignment: Materials /Tasks on eLearning.	Widodo and Derwin. Artificial Intelligence concepts and applications: First Edition. Yogyakarta: Andi. 2014	10

10	Sub-CPMK0511 - Ability to understand the theory of software engineering in designing multi-platform technology applications that are relevant to the needs of industry and society.	Students are able to explain the fundamental concepts of Natural Language Processing and its application in various smart applications.	Presentation Quality; Performance	Lecture; Discovery Learning, group discussion. (2x(2x50 minute)	Assign ment: Materi als /Tasks on eLearning.	Widodo and Derwin. Artificial Intelligence concepts and applications: First Edition. Yogyakarta: Andi. 2014	10
11	Sub-CPMK0511 - Ability to understand the theory of software engineering in designing multi-platform technology applications that are relevant to the needs of industry and society.	Students are able to explain computer vision in artificial intelligence applications	Accuracy of UAS Answers; Written Test (UAS)	Lecture; Discovery Learning, group discussion. (2x(2x50 minute)	Assign ment: Materi als /Tasks on eLearning.	Widodo and Derwin. Artificial Intelligence concepts and applications: First Edition. Yogyakarta: Andi. 2014	5
12	Sub-CPMK0511 - Ability to understand the theory of software engineering in designing multi-platform technology applications that are relevant to the needs of industry and society.	Students are able to understand in-depth concept understanding of robotics technology in artificial intelligence applications	Accuracy of UAS Answers; Written Test (UAS)	Lecture; Discovery Learning, group discussion. (2x(2x50 minute)	Assign ment: Materi als /Tasks on eLearning.	Widodo and Derwin. Artificial Intelligence concepts and applications: First Edition. Yogyakarta: Andi. 2014	5
13	Sub-CPMK0511 - Ability to understand the theory of software engineering in designing multi-platform technology applications that are relevant to the needs of industry and society.	Students are able to explain basic concepts of micro controller and robotics	Accuracy of UAS Answers; Written Test (UAS)	Lecture; Discovery Learning, group discussion. (2x(2x50 minute)	Assign ment: Materi als /Tasks on eLearning.	Widodo and Derwin. Artificial Intelligence concepts and applications: First Edition. Yogyakarta: Andi. 2014	10
14	Sub-CPMK0511 - Ability to understand the theory of software engineering in designing multi-platform technology applications that are relevant to the needs of industry and society.	Students are able to present the results of problem solving by utilising the concept of artificial intelligence applications case study each	Accuracy of UAS Answers; Written Test (UAS)	Lecture; Discovery Learning, group discussion. (2x(2x50 minute)	Assign ment: Materi als /Tasks on eLearning.	Widodo and Derwin. Artificial Intelligence concepts and applications: First Edition. Yogyakarta: Andi. 2014	10

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SEMESTER LEARNING PLAN

COURSE (MK)	CODE	Study Material (BK)	WEIGHT (credits)		SEMESTER	Date of Preparation
Computer Network	INF024	Computer Networks ; Security Technology and Implementation;	T [Theory] = 2	P [Practice] = 1	(3) Three	2 March 2023

	Semester Learning Plan Developer	Study Material Coordinator	Head of study programme
RESPONSE	Deden Hardan Gutama, S.Kom., M.Kom	Dita Danianti, S.Kom., M.Kom	Dhina Puspasari Wijaya, S.Kom., M.Kom

Learning Outcomes	**SLOs that are imposed on MKs**	
	CPL03	Have adequate knowledge of how computer systems work and be able to apply/use various algorithms/methods to solve problems in an organisation.
	Course Learning Outcomes (CPMK)	
	CPMK031	Able to understand how computer systems work
	End ability of each learning stage (Sub-CPMK)	

Correlation of CPMK to Sub-CPMK	

Course Learning Outcomes		Supported SLOs
CPMK Code	**Description of CPMK**	
CPMK031	Able to understand how computer systems work	CPL03

Brief description of the course	In this computer networking course, students will introduced to the concepts of computer networks, thus it is hoped that there will be enlightenment of student insights in the perception and understanding of informatics, especially in the field of computer networks and security.	
Study Material: Learning Materials	Computer Networks, Security Technology and Implementation	
Library	**Main:**	
	1. Computer Networking: A Top Down Approach 6th edition Jim Kurose, Keith RossAddison-WesleyMarch 2012 2. Tittel. Ed. 2014. Schaum's Out Lines Computer Networking. Erlangga 3. Basic Computer Network, Danar Putra Pamungkas, CV. Kasih Inovasi Teknologi 2018	
	Supporters:	
	1. Sukaridhoto. Sritruta. 2014. Computer Network Book I. Surabaya State Electronics Polytechnic	
Lecturer	Deden Hardan Gutama, S.Kom., M.Kom	
Prerequisite Courses	-	

Week 1	End ability of each learning stage (Sub-CPMK)	Indicators	Criteria and Techniques	Form of Learning; Learning Methods; Student Assignments; [Time Estimation]		Learning Materials [Library]	Assessment Weight (%)
(1)	(2)	(3)	(4)	Offline (5)	Online (6)	(7)	(8)
1	Sub-CPMK0311 Ability to understand how to computer systems work	Understand the material from the lecture Introduction to computer networks	Accuracy of Quiz Answers; Observation (Practice / Assignment)	Student-Learning Centre	Asynchronous	1	5
2	Sub-CPMK0311 Ability to understand how computer systems work UTS Meeting 8	Students are able to explain the principle of communication between devices in network media	Accuracy of Test Answers; Observation (Practice / Assignment)	Student-Learning Centre	Asynchronous	1,2	10
3	Sub-CPMK0311 Ability to understand how to computer systems work	Students are able to understand the types of networks and the benefits of networks	Accuracy of Quiz Answers; Observation (Practice / Assignment)	Student-Learning Centre	Asynchronous	1,2,3	5
4	Sub-CPMK0311 Ability to understand how to computer systems work	Able to understand various kinds of existing and latest network devices	Accuracy of Quiz Answers; Observation (Practice / Assignment)	Student-Learning Centre	Asynchronous	1,2,3	5
5	Sub-CPMK0311 Ability to understand how to computer systems work	Students understand the functions and basic settings of Mikrotik routers	Accuracy of Quiz Answers; Written Test (UTS)	Student-Learning Centre	Asynchronous	1,2,3	5
6	Sub-CPMK0311 Ability to understand how to computer systems work	Students understand the functions and settings of the Mikrotik router bridge mode	Accuracy of Test Answers; Performance	Student-Learning Centre	Asynchronous	1,2,3	10
7	Sub-CPMK0311 Ability to understand how to computer systems work	Students are able to build a physical network using a switch hub	Practical Results; Performance	Problem-Learning Centre	Asynchronous	1,2,3	5
8	Sub-CPMK0311 Ability to understand how to computer systems work	Students are able to build, monitor, and evaluate networks	Accuracy of UTS Answers; Written Test (UTS)	Problem-Learning Centre	Asynchronous	1,2,3	10
9	Sub-CPMK0311 Ability to understand how to computer systems work	Students understand and are able to provide sampling of each OSI layer	Accuracy of Answer; Observation (Practice/Task)	Student-Learning Centre	Asynchronous	1,2,3	5
10	Sub-CPMK0311 Ability to understand how to computer systems work	Students understand the basis and model of TCP/IP	Accuracy of UAS Answers; Observation (Practice / Assignment)	Student-Learning Centre	Asynchronous	1,2,3	10
11	Sub-CPMK0311 Ability to understand how to computer systems work	Students are able to calculate IP v.4 and IP v.6	Quality of Presentation; Observation (Practical/Assignment)	Student-Learning Centre	Asynchronous	1,2,3	5
12	Sub-CPMK0311 Ability to understand how to computer systems work	Understand the concept of subnetting	Accuracy of Answer; Observation (Practice/Task)	Student-Learning Centre	Asynchronous	1,2,3	0
13	Sub-CPMK0311 Ability to understand how to computer systems work	Understand routing, subnetting, and TCP/IP protocols	Accuracy of UAS Answers; Written Test (UAS)	Problem-Learning Centre	Asynchronous	1,2,3	10

14	Sub-CPMK0311 Ability to understand how to computer systems work	Able to implement routing, subnetting, and TCP/IP protocols	Accuracy of UAS Answers; Written Test (UAS)	Student-Learning Centre	Asynchronous	1,2,3	10